



SEQUENCE LISTING

<110> Bristol-Myers Squibb Company

<120> A NOVEL HUMAN LEUCINE-RICH REPEAT CONTAINING PROTEIN EXPRESSED
PREDOMINATELY IN SMALL INTESTINE, HLRRS11

<130> D0066NP

<140> U.S. Serial No. 10/029,347

<141> 2001-12-20

<150> US 60/257,774

<151> 2000-12-22

<160> 45

<170> PatentIn version 3.2

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Asp Gly Ala Asp Glu Leu Pro Ala Leu Gly Gly Pro Glu Ala Ala Pro
                15                20                25
tgc aca gac ccc ttc gag gcg gcg agc ggc gcg cgg gtg cta ggc ggg      206
Cys Thr Asp Pro Phe Glu Ala Ala Ser Gly Ala Arg Val Leu Gly Gly
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ctg ctg agt aag gcg ctg ctg ccc acg gcc ctc ctg ctg gtg acc acg      254
Leu Leu Ser Lys Ala Leu Leu Pro Thr Ala Leu Leu Leu Val Thr Thr
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cgc gcc gcc gcc ccc ggg agg ctg cag ggc cgc ctg tgt tcc ccg cag      302
Arg Ala Ala Ala Pro Gly Arg Leu Gln Gly Arg Leu Cys Ser Pro Gln
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tgc gcc gag gtg cgc ggc ttc tcc gac aag gac aag aag aag tat ttc      350
Cys Ala Glu Val Arg Gly Phe Ser Asp Lys Asp Lys Lys Lys Tyr Phe
                80                85                90
tac aag ttc ttc cgg gat gag agg agg gcc gag cgc gcc tac cgc ttc      398
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Tyr | Lys | Phe | Phe | Arg | Asp | Glu | Arg | Arg | Ala | Glu | Arg | Ala | Tyr | Arg | Phe | | |
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| gtg | aag | gag | aac | gag | acg | ctg | ttc | gcg | ctg | tgc | ttc | gtg | ccc | ttc | gtg | 446 | |
| Val | Lys | Glu | Asn | Glu | Thr | Leu | Phe | Ala | Leu | Cys | Phe | Val | Pro | Phe | Val | | |
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| tgc | tgg | atc | gtg | tgc | acc | gtg | ctg | cgc | cag | cag | ctg | gag | ctc | ggt | cgg | 494 | |
| Cys | Trp | Ile | Val | Cys | Thr | Val | Leu | Arg | Gln | Gln | Leu | Glu | Leu | Gly | Arg | | |
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| Asp | Leu | Ser | Arg | Thr | Ser | Lys | Thr | Thr | Thr | Ser | Val | Tyr | Leu | Leu | Phe | | |
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| atc | acc | agc | gtt | ctg | agc | tcg | gct | ccg | gta | gcc | gac | ggg | ccc | cgg | ttg | 590 | |
| Ile | Thr | Ser | Val | Leu | Ser | Ser | Ala | Pro | Val | Ala | Asp | Gly | Pro | Arg | Leu | | |
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| cag | ggc | gac | ctg | cgc | aat | ctg | tgc | cgc | ctg | gcc | cgc | gag | ggc | gtc | ctc | 638 | |
| Gln | Gly | Asp | Leu | Arg | Asn | Leu | Cys | Arg | Leu | Ala | Arg | Glu | Gly | Val | Leu | | |
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| gga | cgc | agg | gcg | cag | ttt | gcc | gag | aag | gaa | ctg | gag | caa | ctg | gag | ctt | 686 | |
| Gly | Arg | Arg | Ala | Gln | Phe | | Glu | Lys | Glu | Leu | | Gln | Leu | Glu | Leu | | |
| | 190 | | | | | 195 | | | | | 200 | | | | | | |
| cgt | ggc | tcc | aaa | gtg | cag | acg | ctg | ttt | ctc | agc | aaa | aag | gag | ctg | ccg | 734 | |
| Arg | Gly | Ser | Lys | Val | Gln | Thr | Leu | Phe | Leu | Ser | Lys | Lys | Glu | Leu | Pro | | |
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| ggc | gtg | ctg | gag | aca | gag | gtc | acc | tac | cag | ttc | atc | gac | cag | agc | ttc | 782 | |
| Gly | Val | Leu | Glu | Thr | Glu | Val | Thr | Tyr | Gln | Phe | Ile | Asp | Gln | Ser | Phe | | |
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| cag | gag | ttc | ctc | gcg | gca | ctg | tcc | tac | ctg | ctg | gag | gac | ggc | ggg | gtg | 830 | |
| Gln | Glu | Phe | Leu | Ala | Ala | Leu | Ser | Tyr | Leu | Leu | Glu | Asp | Gly | Gly | Val | | |
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| ccc | agg | acc | gcg | gct | ggc | ggc | gtt | ggg | aca | ctc | ctg | cgt | ggg | gac | gcc | 878 | |
| Pro | Arg | Thr | Ala | Ala | Gly | Gly | Val | Gly | Thr | Leu | Leu | Arg | Gly | Asp | Ala | | |
| | | 255 | | | | | 260 | | | | | 265 | | | | | |
| cag | ccg | cac | agc | cac | ttg | gtg | ctc | acc | acg | cgc | ttc | ctc | ttc | gga | ctg | 926 | |
| Gln | Pro | His | Ser | His | Leu | Val | Leu | Thr | Thr | Arg | Phe | Leu | Phe | Gly | Leu | | |
| | 270 | | | | | 275 | | | | | 280 | | | | | | |
| ctg | agc | gcg | gag | cgg | atg | cgc | gac | atc | gag | cgc | cac | ttc | ggc | tgc | atg | 974 | |
| Leu | Ser | Ala | Glu | Arg | Met | Arg | Asp | Ile | Glu | Arg | His | Phe | Gly | Cys | Met | | |
| 285 | | | | | 290 | | | | | 295 | | | | | 300 | | |
| gtt | tca | gag | cgt | gtg | aag | cag | gag | gcc | ctg | cgg | tgg | gtg | cag | gga | cag | 1022 | |
| Val | Ser | Glu | Arg | Val | Lys | Gln | Glu | Ala | Leu | Arg | Trp | Val | Gln | Gly | Gln | | |
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| gga | cag | ggc | tgc | ccc | gga | gtg | gca | cca | gag | gtg | acc | gag | ggg | gcc | aaa | 1070 | |
| Gly | Gln | Gly | Cys | Pro | Gly | Val | Ala | Pro | Glu | Val | Thr | Glu | Gly | Ala | Lys | | |

| 320 | | | | | | | | | | 325 | | | | | | | | | | 330 | | | | | | | | | | |
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| ggg | ctc | gag | gac | acc | gaa | gag | cca | gag | gag | gag | gag | gag | gga | gag | gag | | 1118 | | | | | | | | | | | | | |
| Gly | Leu | Glu | Asp | Thr | Glu | Glu | Pro | Glu | Glu | Glu | Glu | Glu | Gly | Glu | Glu | | | | | | | | | | | | | | | |
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| ccc | aac | tac | cca | ctg | gag | ttg | ctg | tac | tgc | ctg | tac | gag | acg | cag | gag | | 1166 | | | | | | | | | | | | | |
| Pro | Asn | Tyr | Pro | Leu | Glu | Leu | Leu | Tyr | Cys | Leu | Tyr | Glu | Thr | Gln | Glu | | | | | | | | | | | | | | | |
| | 350 | | | | | 355 | | | | | 360 | | | | | | | | | | | | | | | | | | | |
| gac | gcg | ttt | gtg | cgc | caa | gcc | ctg | tgc | cgg | ttc | ccg | gag | ctg | gcg | ctg | | 1214 | | | | | | | | | | | | | |
| Asp | Ala | Phe | Val | Arg | Gln | Ala | Leu | Cys | Arg | Phe | Pro | Glu | Leu | Ala | Leu | | | | | | | | | | | | | | | |
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| cag | cga | gtg | cgc | ttc | tgc | cgc | atg | gac | gtg | gct | gtt | ctg | agc | tac | tgc | | 1262 | | | | | | | | | | | | | |
| Gln | Arg | Val | Arg | Phe | Cys | Arg | Met | Asp | Val | Ala | Val | Leu | Ser | Tyr | Cys | | | | | | | | | | | | | | | |
| | | | | 385 | | | | | 390 | | | | | 395 | | | | | | | | | | | | | | | | |
| gtg | agg | tgc | tgc | cct | gct | gga | cag | gca | ctg | cgg | ctg | atc | agc | tgc | aga | | 1310 | | | | | | | | | | | | | |
| Val | Arg | Cys | Cys | Pro | Ala | Gly | Gln | Ala | Leu | Arg | Leu | Ile | Ser | Cys | Arg | | | | | | | | | | | | | | | |
| | | | 400 | | | | 405 | | | | | | 410 | | | | | | | | | | | | | | | | | |
| ttg | gtt | gct | gcg | cag | gag | aag | aag | aag | aag | agc | ctg | ggg | aag | cgg | ctc | | 1358 | | | | | | | | | | | | | |
| Leu | Val | Ala | Ala | Gln | Glu | Lys | Lys | Lys | Lys | Ser | Leu | Gly | Lys | Arg | Leu | | | | | | | | | | | | | | | |
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| cag | gcc | agc | ctg | ggt | ggc | ggc | agt | tct | caa | ggc | acc | aca | aaa | caa | ctg | | 1406 | | | | | | | | | | | | | |
| Gln | Ala | Ser | Leu | Gly | Gly | Gly | Ser | Ser | Gln | Gly | Thr | Thr | Lys | Gln | Leu | | | | | | | | | | | | | | | |
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| cca | gcc | tcc | ctt | ctt | cat | cca | ctc | ttt | cag | gca | atg | act | gac | cca | ctg | | 1454 | | | | | | | | | | | | | |
| Pro | Ala | Ser | Leu | Leu | His | Pro | Leu | Phe | Gln | Ala | Met | Thr | Asp | Pro | Leu | | | | | | | | | | | | | | | |
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| tgc | cat | ctg | agc | agc | ctc | acg | ctg | tcc | cac | tgc | aaa | ctc | cct | gac | gcg | | 1502 | | | | | | | | | | | | | |
| Cys | His | Leu | Ser | Ser | Leu | Thr | Leu | Ser | His | Cys | Lys | Leu | Pro | Asp | Ala | | | | | | | | | | | | | | | |
| | | | | 465 | | | | | 470 | | | | | 475 | | | | | | | | | | | | | | | | |
| gtc | tgc | cga | gac | ctt | tct | gag | gcc | ctg | agg | gca | gcc | ccc | gca | ctg | acg | | 1550 | | | | | | | | | | | | | |
| Val | Cys | Arg | Asp | Leu | Ser | Glu | Ala | Leu | Arg | Ala | Ala | Pro | Ala | Leu | Thr | | | | | | | | | | | | | | | |
| | | | 480 | | | | | 485 | | | | | 490 | | | | | | | | | | | | | | | | | |
| gag | ctg | ggc | ctc | ctc | cac | aac | agg | ctc | agt | gag | gcg | gga | ctg | cgt | atg | | 1598 | | | | | | | | | | | | | |
| Glu | Leu | Gly | Leu | Leu | His | Asn | Arg | Leu | Ser | Glu | Ala | Gly | Leu | Arg | Met | | | | | | | | | | | | | | | |
| | | 495 | | | | | 500 | | | | | 505 | | | | | | | | | | | | | | | | | | |
| ctg | agt | gag | ggc | cta | gcc | tgg | ccg | cag | tgc | agg | gtg | cag | acg | gtc | agg | | 1646 | | | | | | | | | | | | | |
| Leu | Ser | Glu | Gly | Leu | Ala | Trp | Pro | Gln | Cys | Arg | Val | Gln | Thr | Val | Arg | | | | | | | | | | | | | | | |
| | 510 | | | | | 515 | | | | | 520 | | | | | | | | | | | | | | | | | | | |
| gta | cag | ctg | cct | gac | ccc | cag | cga | ggg | ctc | cag | tac | ctg | gtg | ggt | atg | | 1694 | | | | | | | | | | | | | |
| Val | Gln | Leu | Pro | Asp | Pro | Gln | Arg | Gly | Leu | Gln | Tyr | Leu | Val | Gly | Met | | | | | | | | | | | | | | | |
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| ctt | cgg | cag | agc | ccc | gcc | ctg | acc | acc | ctg | gat | ctc | agc | ggc | tgc | caa | | 1742 | | | | | | | | | | | | | |
| Leu | Arg | Gln | Ser | Pro | Ala | Leu | Thr | Thr | Leu | Asp | Leu | Ser | Gly | Cys | Gln | | | | | | | | | | | | | | | |
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| | |
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| ctg ccc gcc ccc atg gtg acc tac ctg tgt gca gtc ctg cag cac cag Leu Pro Ala Pro Met Val Thr Tyr Leu Cys Ala Val Leu Gln His Gln 560 565 570 | 1790 |
| gga tgc ggc ctg cag acc ctc agt ctg gcc tct gtg gag ctg agc gag Gly Cys Gly Leu Gln Thr Leu Ser Leu Ala Ser Val Glu Leu Ser Glu 575 580 585 | 1838 |
| cag tca cta cag gag ctt cag gct gtg aag aga gca aag ccg gat ctg Gln Ser Leu Gln Glu Leu Gln Ala Val Lys Arg Ala Lys Pro Asp Leu 590 595 600 | 1886 |
| gtc atc aca cac cca gcg ctg gac ggc cac cca caa cct ccc aag gaa Val Ile Thr His Pro Ala Leu Asp Gly His Pro Gln Pro Pro Lys Glu 605 610 615 620 | 1934 |
| ctc atc tcg acc ttc tgaggctctg gtggccagag caggggtggaa gaccctagtc Leu Ile Ser Thr Phe 625 | 1989 |
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| ccccagccc caccactact ccaccacct tcctctctctg agacctcca gccattcccc | 2229 |
| ttgaaaacac cccccgaccc caagccacaa taatgacagc gagagctcca attaactaag | 2289 |
| cacctacctg gcggcagaat aacccttcac tgctgatcc ccatctgcag tgtggcccaa | 2349 |
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Glu Leu Pro Ala Leu Gly Gly Pro Glu Ala Ala Pro Cys Thr Asp Pro
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Phe Glu Ala Ala Ser Gly Ala Arg Val Leu Gly Gly Leu Leu Ser Lys
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Ala Leu Leu Pro Thr Ala Leu Leu Leu Val Thr Thr Arg Ala Ala Ala
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Pro Gly Arg Leu Gln Gly Arg Leu Cys Ser Pro Gln Cys Ala Glu Val
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Arg Gly Phe Ser Asp Lys Asp Lys Lys Lys Tyr Phe Tyr Lys Phe Phe
 85 90 95

Arg Asp Glu Arg Arg Ala Glu Arg Ala Tyr Arg Phe Val Lys Glu Asn
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Glu Thr Leu Phe Ala Leu Cys Phe Val Pro Phe Val Cys Trp Ile Val
 115 120 125

Cys Thr Val Leu Arg Gln Gln Leu Glu Leu Gly Arg Asp Leu Ser Arg
 130 135 140

Thr Ser Lys Thr Thr Thr Ser Val Tyr Leu Leu Phe Ile Thr Ser Val
 145 150 155 160

Leu Ser Ser Ala Pro Val Ala Asp Gly Pro Arg Leu Gln Gly Asp Leu
 165 170 175

Arg Asn Leu Cys Arg Leu Ala Arg Glu Gly Val Leu Gly Arg Arg Ala
 180 185 190

Gln Phe Ala Glu Lys Glu Leu Glu Gln Leu Glu Leu Arg Gly Ser Lys
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Val Gln Thr Leu Phe Leu Ser Lys Lys Glu Leu Pro Gly Val Leu Glu
 210 215 220

Thr Glu Val Thr Tyr Gln Phe Ile Asp Gln Ser Phe Gln Glu Phe Leu
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Ala Ala Leu Ser Tyr Leu Leu Glu Asp Gly Gly Val Pro Arg Thr Ala

| | | | | | | | | | | | | | | | |
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| Ala | Gly | Gly | Val 260 | Gly | Thr | Leu | Leu | Arg 265 | Gly | Asp | Ala | Gln | Pro 270 | His | Ser |
| His | Leu | Val 275 | Leu | Thr | Thr | Arg | Phe 280 | Leu | Phe | Gly | Leu | Leu 285 | Ser | Ala | Glu |
| Arg | Met 290 | Arg | Asp | Ile | Glu | Arg 295 | His | Phe | Gly | Cys | Met 300 | Val | Ser | Glu | Arg |
| Val 305 | Lys | Gln | Glu | Ala | Leu 310 | Arg | Trp | Val | Gln | Gly 315 | Gln | Gly | Gln | Gly | Cys 320 |
| Pro | Gly | Val | Ala 325 | Pro | Glu | Val | Thr | Glu | Gly 330 | Ala | Lys | Gly | Leu | Glu 335 | Asp |
| Thr | Glu | Glu | Pro 340 | Glu | Glu | Glu | Glu | Glu 345 | Gly | Glu | Glu | Pro | Asn 350 | Tyr | Pro |
| Leu | Glu | Leu 355 | Leu | Tyr | Cys | Leu | Tyr 360 | Glu | Thr | Gln | Glu | Asp 365 | Ala | Phe | Val |
| Arg | Gln 370 | Ala | Leu | Cys | Arg | Phe 375 | Pro | Glu | Leu | Ala | Leu 380 | Gln | Arg | Val | Arg |
| Phe 385 | Cys | Arg | Met | Asp | Val 390 | Ala | Val | Leu | Ser | Tyr 395 | Cys | Val | Arg | Cys | Cys 400 |
| Pro | Ala | Gly | Gln | Ala 405 | Leu | Arg | Leu | Ile | Ser 410 | Cys | Arg | Leu | Val | Ala 415 | Ala |
| Gln | Glu | Lys | Lys 420 | Lys | Lys | Ser | Leu | Gly 425 | Lys | Arg | Leu | Gln | Ala 430 | Ser | Leu |
| Gly | Gly | Gly 435 | Ser | Ser | Gln | Gly | Thr 440 | Thr | Lys | Gln | Leu | Pro 445 | Ala | Ser | Leu |
| Leu | His 450 | Pro | Leu | Phe | Gln | Ala 455 | Met | Thr | Asp | Pro | Leu 460 | Cys | His | Leu | Ser |
| Ser 465 | Leu | Thr | Leu | Ser | His 470 | Cys | Lys | Leu | Pro | Asp 475 | Ala | Val | Cys | Arg | Asp 480 |

Leu Ser Glu Ala Leu Arg Ala Ala Pro Ala Leu Thr Glu Leu Gly Leu
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Leu His Asn Arg Leu Ser Glu Ala Gly Leu Arg Met Leu Ser Glu Gly
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Leu Ala Trp Pro Gln Cys Arg Val Gln Thr Val Arg Val Gln Leu Pro
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Asp Pro Gln Arg Gly Leu Gln Tyr Leu Val Gly Met Leu Arg Gln Ser
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Pro Ala Leu Thr Thr Leu Asp Leu Ser Gly Cys Gln Leu Pro Ala Pro
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Met Val Thr Tyr Leu Cys Ala Val Leu Gln His Gln Gly Cys Gly Leu
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Gln Thr Leu Ser Leu Ala Ser Val Glu Leu Ser Glu Gln Ser Leu Gln
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Phe
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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
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Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
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Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
 65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
 85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
 100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
 115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
 130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser His Leu Tyr Gln Ala Leu
 145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
 165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
 180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
 195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
 210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
 225 230 235 240

Pro Pro Gln Ala His Ser Ser Leu Gln Pro His His His Pro Trp Glu
 245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu

| | | |
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| 275 | 280 | 285 |
| Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val | | |
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| Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro | | |
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| Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala | | |
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| Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly | | |
| | 340 | 345 |
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| Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser | | |
| | 355 | 360 |
| | | 365 |
| Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile | | |
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| | | 380 |
| Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser | | |
| 385 | 390 | 395 |
| Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly | | |
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| Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln | | |
| | 420 | 425 |
| | | 430 |
| Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile | | |
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| | | 445 |
| Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln | | |
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| | | 460 |
| Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly | | |
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| | 485 | 490 |
| | | 495 |

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
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Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
 515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
 530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
 545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
 565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
 580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
 595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
 610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu
 625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
 645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
 660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
 675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
 690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
 705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
 725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
 740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
 755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Ser Met Val
 770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
 785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
 805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
 820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
 835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
 850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Met Asp Ala
 865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
 885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
 900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
 915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
 930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln
 945 950 955 960

Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
 965 970 975

Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
 980 985 990

Thr Pro Ile Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
 995 1000 1005

Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His
 1010 1015 1020

Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
 1025 1030 1035

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro
 1040 1045 1050

Val Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu
 1055 1060 1065

His Thr Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr
 1070 1075 1080

Gly Pro Val Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr
 1085 1090 1095

Arg Val His Phe Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr
 1100 1105 1110

Gly Leu Cys Phe Val Val Arg Glu Ala Val Thr Val Glu Ile Glu
 1115 1120 1125

Phe Cys Val Trp Asp Gln Phe Leu Gly Glu Ile Asn Pro Gln His
 1130 1135 1140

Ser Trp Met Val Ala Gly Pro Leu Leu Asp Ile Lys Ala Glu Pro
 1145 1150 1155

Gly Ala Val Glu Ala Val His Leu Pro His Phe Val Ala Leu Gln

| | | | | |
|---|------|------|--|------|
| 1160 | | 1165 | | 1170 |
| Gly Gly His Val Asp Thr Ser Leu Phe Gln Val Ala His Phe Lys | 1175 | 1180 | | 1185 |
| Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val Glu Leu His | 1190 | 1195 | | 1200 |
| His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro Leu Gly Val Leu | 1205 | 1210 | | 1215 |
| Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro Val Thr Ser | 1220 | 1225 | | 1230 |
| Val Val Leu Leu Tyr His Arg Leu His Pro Glu Glu Val Thr Phe | 1235 | 1240 | | 1245 |
| His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu Leu | 1250 | 1255 | | 1260 |
| Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu | 1265 | 1270 | | 1275 |
| Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys | 1280 | 1285 | | 1290 |
| Asp Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro | 1295 | 1300 | | 1305 |
| Gly Asp Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Cys Ile | 1310 | 1315 | | 1320 |
| Ala Val Pro Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val | 1325 | 1330 | | 1335 |
| Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu | 1340 | 1345 | | 1350 |
| Val Val Leu Asp Lys Leu His Gly Gln Val Leu Ser Gln Glu Gln | 1355 | 1360 | | 1365 |
| Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser Gln Met Arg | 1370 | 1375 | | 1380 |

Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys Lys Asp
 1385 1390 1395

Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile Met
 1400 1405 1410

Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro Leu Ser
 1415 1420 1425

Ser

<210> 4
 <211> 1033
 <212> PRT
 <213> Homo sapiens

<400> 4

Met Gly Phe Asn Leu Gln Ala Leu Leu Glu Gln Leu Ser Gln Asp Glu
 1 5 10 15

Leu Ser Lys Phe Lys Tyr Leu Ile Thr Thr Phe Ser Pro Ala His Glu
 20 25 30

Leu Gln Lys Ile Pro His Lys Glu Val Asp Lys Ala Asp Gly Lys Gln
 35 40 45

Leu Val Glu Ile Leu Thr Thr His Cys Asp Ser Tyr Trp Val Glu Met
 50 55 60

Ala Ser Leu Gln Val Phe Glu Lys Met His Arg Met Asp Leu Ser Glu
 65 70 75 80

Arg Ala Lys Asp Glu Val Arg Glu Ala Ala Leu Lys Ser Phe Asn Lys
 85 90 95

Arg Lys Pro Leu Ser Leu Gly Ile Thr Arg Lys Glu Arg Pro Pro Leu
 100 105 110

Asp Val Asp Glu Met Leu Glu Arg Phe Lys Thr Glu Ala Gln Asp Lys
 115 120 125

Asp Asn Arg Cys Arg Tyr Ile Leu Lys Thr Lys Phe Arg Glu Met Trp
 130 135 140

Lys Ser Trp Pro Gly Asp Ser Lys Glu Val Gln Val Met Ala Glu Arg
 145 150 155 160

Tyr Lys Met Leu Ile Pro Phe Ser Asn Pro Arg Val Leu Pro Gly Pro
 165 170 175

Phe Ser Tyr Thr Val Val Leu Tyr Gly Pro Ala Gly Leu Gly Lys Thr
 180 185 190

Thr Leu Ala Gln Lys Leu Met Leu Asp Trp Ala Glu Asp Asn Leu Ile
 195 200 205

His Lys Phe Lys Tyr Ala Phe Tyr Leu Ser Cys Arg Glu Leu Ser Arg
 210 215 220

Leu Gly Pro Cys Ser Phe Ala Glu Leu Val Phe Arg Asp Trp Pro Glu
 225 230 235 240

Leu Gln Asp Asp Ile Pro His Ile Leu Ala Gln Ala Arg Lys Ile Leu
 245 250 255

Phe Val Ile Asp Gly Phe Asp Glu Leu Gly Ala Ala Pro Gly Ala Leu
 260 265 270

Ile Glu Asp Ile Cys Gly Asp Trp Glu Lys Lys Lys Pro Val Pro Val
 275 280 285

Leu Leu Gly Ser Leu Leu Asn Arg Val Met Leu Pro Lys Ala Ala Leu
 290 295 300

Leu Val Thr Thr Arg Pro Arg Ala Leu Arg Asp Leu Arg Ile Leu Ala
 305 310 315 320

Glu Glu Pro Ile Tyr Ile Arg Val Glu Gly Phe Leu Glu Glu Asp Lys
 325 330 335

Arg Ala Tyr Phe Leu Arg His Phe Gly Asp Glu Asp Gln Ala Met Arg
 340 345 350

Ala Phe Glu Leu Met Arg Ser Asn Ala Ala Leu Phe Gln Leu Gly Ser

| | | |
|--|-----|-----|
| 355 | 360 | 365 |
| Ala Pro Ala Val Cys Trp Ile Val Cys Thr Thr Leu Lys Leu Gln Met 370 375 380 | | |
| Glu Lys Gly Glu Asp Pro Val Pro Thr Cys Leu Thr Arg Thr Gly Leu 385 390 395 400 | | |
| Phe Leu Arg Phe Leu Cys Ser Arg Phe Pro Gln Gly Ala Gln Leu Arg 405 410 415 | | |
| Gly Ala Leu Arg Thr Leu Ser Leu Leu Ala Ala Gln Gly Leu Trp Ala 420 425 430 | | |
| Gln Thr Ser Val Leu His Arg Glu Asp Leu Glu Arg Leu Gly Val Gln 435 440 445 | | |
| Glu Ser Asp Leu Arg Leu Phe Leu Asp Gly Asp Ile Leu Arg Gln Asp 450 455 460 | | |
| Arg Val Ser Lys Gly Cys Tyr Ser Phe Ile His Leu Ser Phe Gln Gln 465 470 475 480 | | |
| Phe Leu Thr Ala Leu Phe Tyr Thr Leu Glu Lys Glu Glu Glu Glu Asp 485 490 495 | | |
| Arg Asp Gly His Thr Trp Asp Ile Gly Asp Val Gln Lys Leu Leu Ser 500 505 510 | | |
| Gly Val Glu Arg Leu Arg Asn Pro Asp Leu Ile Gln Ala Gly Tyr Tyr 515 520 525 | | |
| Ser Phe Gly Leu Ala Asn Glu Lys Arg Ala Lys Glu Leu Glu Ala Thr 530 535 540 | | |
| Phe Gly Cys Arg Met Ser Pro Asp Ile Lys Gln Glu Leu Leu Arg Cys 545 550 555 560 | | |
| Asp Ile Ser Cys Lys Gly Gly His Ser Thr Val Thr Asp Leu Gln Glu 565 570 575 | | |
| Leu Leu Gly Cys Leu Tyr Glu Ser Gln Glu Glu Glu Leu Val Lys Glu 580 585 590 | | |

Val Met Ala Gln Phe Lys Glu Ile Ser Leu His Leu Asn Ala Val Asp
595 600 605

Val Val Pro Ser Ser Phe Cys Val Lys His Cys Arg Asn Leu Gln Lys
610 615 620

Met Ser Leu Gln Val Ile Lys Glu Asn Leu Pro Glu Asn Val Thr Ala
625 630 635 640

Ser Glu Ser Asp Ala Glu Val Glu Arg Ser Gln Asp Asp Gln His Met
645 650 655

Leu Pro Phe Trp Thr Asp Leu Cys Ser Ile Phe Gly Ser Asn Lys Asp
660 665 670

Leu Met Gly Leu Ala Ile Asn Asp Ser Phe Leu Ser Ala Ser Leu Val
675 680 685

Arg Ile Leu Cys Glu Gln Ile Ala Ser Asp Thr Cys His Leu Gln Arg
690 695 700

Val Val Phe Lys Asn Ile Ser Pro Ala Asp Ala His Arg Asn Leu Cys
705 710 715 720

Leu Ala Leu Arg Gly His Lys Thr Val Thr Tyr Leu Thr Leu Gln Gly
725 730 735

Asn Asp Gln Asp Asp Met Phe Pro Ala Leu Cys Glu Val Leu Arg His
740 745 750

Pro Glu Cys Asn Leu Arg Tyr Leu Gly Leu Val Ser Cys Ser Ala Thr
755 760 765

Thr Gln Gln Trp Ala Asp Leu Ser Leu Ala Leu Glu Val Asn Gln Ser
770 775 780

Leu Thr Cys Val Asn Leu Ser Asp Asn Glu Leu Leu Asp Glu Gly Ala
785 790 795 800

Lys Leu Leu Tyr Thr Thr Leu Arg His Pro Lys Cys Phe Leu Gln Arg
805 810 815

Leu Ser Leu Glu Asn Cys His Leu Thr Glu Ala Asn Cys Lys Asp Leu
 820 825 830

Ala Ala Val Leu Val Val Ser Arg Glu Leu Thr His Leu Cys Leu Ala
 835 840 845

Lys Asn Pro Ile Gly Asn Thr Gly Val Lys Phe Leu Cys Glu Gly Leu
 850 855 860

Arg Tyr Pro Glu Cys Lys Leu Gln Thr Leu Val Leu Trp Asn Cys Asp
 865 870 875 880

Ile Thr Ser Asp Gly Cys Cys Asp Leu Thr Lys Leu Leu Gln Glu Lys
 885 890 895

Ser Ser Leu Leu Cys Leu Asp Leu Gly Leu Asn His Ile Gly Val Lys
 900 905 910

Gly Met Lys Phe Leu Cys Glu Ala Leu Arg Lys Pro Leu Cys Asn Leu
 915 920 925

Arg Cys Leu Trp Leu Trp Gly Cys Ser Ile Pro Pro Phe Ser Cys Glu
 930 935 940

Asp Leu Cys Ser Ala Leu Ser Asn Gln Ser Leu Val Thr Leu Asp Leu
 945 950 955 960

Gly Gln Asn Pro Leu Gly Ser Ser Gly Val Lys Met Leu Phe Glu Thr
 965 970 975

Leu Thr Cys Ser Ser Gly Thr Leu Arg Thr Leu Arg Leu Lys Ile Asp
 980 985 990

Asp Phe Asn Asp Glu Leu Asn Lys Leu Leu Glu Glu Ile Glu Glu Lys
 995 1000 1005

Asn Pro Gln Leu Ile Ile Asp Thr Glu Lys His His Pro Trp Ala
 1010 1015 1020

Glu Arg Pro Ser Ser His Asp Phe Met Ile
 1025 1030

<210> 5
 <211> 2763
 <212> DNA
 <213> Homo Sapiens

<400> 5
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 cgccggtgcc gcagatgctg gccagccgc agcggctgct cttcatcctg gacggcgcg 120
 acgagctgcc ggcgctgggg ggccccgagg ccgcgccctg cacagacccc ttcgaggcg 180
 cgagcggcg gcgggtgcta ggcgggctgc tgagtaaggc gctgctgcc acggccctcc 240
 tgctggtgac cacgcgcgcc gccgccccg ggaggctgca gggccgcctg tgttccccgc 300
 agtgcgccga ggtgcgcggc ttctccgaca aggacaagaa gaagtatttc tacaagttct 360
 tccgggatga gaggaggcc gagcgcgcct accgcttcgt gaaggagaac gagacgctgt 420
 tcgcgctgtg cttcgtgccc ttcgtgtgct ggatcgtgtg caccgtgctg cgccagcagc 480
 tggagctcgg tcgggacctg tcgcgcacgt ccaagaccac cacgtcagtg tacctgcttt 540
 tcatcaccag cgttctgagc tcggctccgg tagccgacgg gccccggttg caggcgacc 600
 tgcgcaatct gtgccgctg gccgcgagg gcgtcctcgg acgcaggcg cagtttgccg 660
 agaaggaact ggagcaactg gagcttcgtg gctccaaagt gcagacgctg tttctcagca 720
 aaaaggagct gccgggcgtg ctggagacag aggtcaccta ccagttcatc gaccagagct 780
 tccaggagtt cctcgcggca ctgtcctacc tgctggagga cggcggggtg cccaggaccg 840
 cggctggcgg cgttgggaca ctctgctg gggacgcca gccgcacagc cacttggtgc 900
 tcaccacgcg cttcctcttc ggactgctga gcgcggagcg gatgcgcgac atcgagcgcc 960
 acttcggctg catggtttca gagcgtgtga agcaggaggc cctgcggtgg gtgcagggac 1020
 agggacaggg ctgccccgga gtggcaccag aggtgaccga gggggccaaa gggctcgagg 1080
 acaccgaaga gccagaggag gaggaggagg gagaggagcc caactaccca ctggagttgc 1140
 tgtactgcct gtacgagacg caggaggacg cgtttgtgcg ccaagccctg tgccggttcc 1200
 cgagctggc gctgcagcga gtgcgcttct gccgcatgga cgtggctgtt ctgagctact 1260
 gcgtgaggtg ctgccctgct ggacaggcac tgcggctgat cagctgcaga ttggttgctg 1320
 cgcaggagaa gaagaagaag agcctgggga agcggctcca ggccagcctg ggtggcggca 1380
 gttctcaagg caccacaaaa caactgccag cctcccttct tcatccactc tttcaggcaa 1440
 tgactgaccc actgtgcat ctgagcagcc tcacgctgtc cactgcaaa ctccctgacg 1500
 cggctctgcc agacctttct gaggccctga gggcagcccc cgactgacg gagctgggcc 1560

| | |
|--|------|
| tcctccacaa caggctcagt gaggcgggac tgcgtatgct gagtgagggc ctagcctggc | 1620 |
| cgcagtgcag ggtgcagacg gtcaggtgag gcctggcctg ggagggaccg tgggatgccc | 1680 |
| ccgccacccc agcagctcct gaggtcggcc ctcccacagg gtacagctgc ctgaccccca | 1740 |
| gcgagggctc cagtacctgg tgggtatgct tcggcagagc cccgccctga ccacctgga | 1800 |
| tctcagcggc tgccaaactgc ccgcccccat ggtgacctac ctgtgtgcag tcctgcagca | 1860 |
| ccagggatgc ggctgcaga ccctcagtct ggcctctgtg gagctgagcg agcagtcact | 1920 |
| acaggagctt caggctgtga agagagcaaa gccggatctg gtcacacac acccagcgct | 1980 |
| ggacggccac ccacaacctc ccaaggaact catctcgacc ttctgaggct ctggtggcca | 2040 |
| gagcaggggtg gaagacccta gtcaaagtcc ctgtggagag aacggcccat tccaagggca | 2100 |
| ggaggatatt gctctcggcc tttgggaaac ttttgagccg agaggccgca gacaggcatg | 2160 |
| tgggagggcc agacacggca ccctgccccg tccaggacag gcccaggacc tgcccctctc | 2220 |
| tccacacctg gggtagccct tctccccag cccaccact actccacca ccttcctctc | 2280 |
| ctgagaccct ccagccattc cccttgaaaa cccccccga cccaagcca caataatgac | 2340 |
| agcgagagct ccaattaact aagcacctac ctggcggcag aataaccctt cactgcctga | 2400 |
| tccccatctg cagtgtggcc caacagcccc cagaactatg cccacataga ctggaggtag | 2460 |
| gcagttcacc gtccctccct gtaggaatg agaccatccc tgaggctatg gcccaggccc | 2520 |
| acaggcgtcc agtgtctgag atctttggga agggagacta gggcaggtgg agacagcgca | 2580 |
| gaacccccgt gctgggtggg aagcatgacc acatggtggg tgagcagccc ccatgcactg | 2640 |
| acggtaaatt cccctgtgga ctcatctctg ttggtttcta ttacacctgg ccaggcgtgg | 2700 |
| tacaatacag gtcggtgctc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa | 2760 |
| aaa | 2763 |

<210> 6
 <211> 2054
 <212> DNA
 <213> Homo Sapiens

| | |
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| ggagctgccg ggcgtgctgg agacagaggt cacctaccag ttcacgacc agagcttcca | 120 |
| ggagttcctc gcggcactgt cctacctgct ggaggacggc ggggtgcca ggaccgcggc | 180 |
| tggcggcggtt gggacactcc tgcgtgggga cgcccagccg cacagccact tgggtgctcac | 240 |

| | |
|--|------|
| cacgcgcttc ctcttcggac tgctgagcgc ggagcggatg cgcgacatcg agcgccactt | 300 |
| cggctgcatg gtttcagagc gtgtgaagca ggaggccctg cggtggtgctc agggacaggg | 360 |
| acagggctgc cccggagtgg caccagaggt gaccgagggg gccaaagggc tcgaggacac | 420 |
| cgaagagcca gaggaggagg aggagggaga ggagcccaac taccactgg agttgctgta | 480 |
| ctgcctgtac gagacgcagg aggacgcgtt tgtgcgcaa gccctgtgcc ggttcccga | 540 |
| gctggcgctg cagcgagtgc gcttctgcc catggacgtg gctgttctga gctactgct | 600 |
| gaggtgctgc cctgctggac aggcactgctg gctgatcagc tgcagattgg ttgctgcgca | 660 |
| ggagaagaag aagaagagcc tggggaagcg gctccaggcc agcctgggtg gcggcagttc | 720 |
| tcaaggcacc aaaaaacaac tgccagcctc ctttcttcat ccactctttc aggcaatgac | 780 |
| tgaccactg tgccatctga gcagcctcac gctgtccac tgcaaactcc ctgacgcggt | 840 |
| ctgccgagac ctttctgagg ccctgagggc agccccgca ctgacggagc tgggcctcct | 900 |
| ccacaacagg ctgagtgagg cgggactgctg tatgctgagt gagggcctag cctggccgca | 960 |
| gtgcaggggtg cagacggtca ggttacagct gcctgacccc cagcgagggc tccagtacct | 1020 |
| ggtgggtatg cttcggcaga gccccgccct gaccaccctg gatctcagcg gctgccaaact | 1080 |
| gcccccccc atggtgacct acctgtgtgc agtctgagc caccagggat gcggcctgca | 1140 |
| gaccctcagt ctggcctctg tggagctgag cgagcagtca ctacaggagc ttcaggctgt | 1200 |
| gaagagagca aagccggtac tggatcacac acaccagcg ctggacggcc acccacaacc | 1260 |
| tccaagga ctcatctcga ctttctgagg ctctggtggc cagagcaggg tggaagacct | 1320 |
| tagtcaaagt ccctgtggag agaacggccc attccaaggg caggaggata ttgctctcgg | 1380 |
| cctttgggaa acttttgagc cgagaggccg cagacaggca tgtgggaggc ccagacacgg | 1440 |
| caccctgcc cgtccaggac agggccagga cctgcccctc tctccacacc tggggtagcc | 1500 |
| cttctcccc agccccacca ctactccacc caccttctc tcctgagacc ctccagccat | 1560 |
| tccccttgaa aacaccccc gacccaagc cacaataatg acagcgagag ctccaattaa | 1620 |
| ctaagcacct acctgggggc agaataacct ttcactgcct gatccccatc tgcagtgtgg | 1680 |
| cccaacagcc ccagaaacta tgcccacata gactggaggt aggcagttca ccgtcccctcc | 1740 |
| ctgttaggaa tgagaccatc cctgaggcta tggcccaggc ccacaggcgt ccagtgtctg | 1800 |
| agatctttgg gaaggagac tagggcaggt ggagacagcg cagaaccccc gtgctgggtg | 1860 |
| ggaagcatga ccacacggtg ggtgagcagc ccccatgcac tgatggtaaa ttcccctgtg | 1920 |

gactcatttc tgttggtttc tattacacct ggccaggcgt ggtacaatac aggtcgggtgc 1980
tcacaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2040
aaaaaaaaaa aaaa 2054

<210> 7
<211> 314
<212> DNA
<213> homo sapiens

<220>
<221> misc_feature
<222> (198)..(229)
<223> wherein "n" is equal to A, C, G, or T.

<220>
<221> misc_feature
<222> (289)..(289)
<223> n is a, c, g, or t

<400> 7
gccacttggg gctcaccacg cgcttcctct tcggactgct gagcgcggag ggatgcgcga 60
catcgagcgc cacttcgggt gcatggtttc agagcgtgtg aagcaggagg ccctgcgggtg 120
gggtgcaggga caggacagg gctgccccgg agtggcacca gaggtgaccg agggggccaa 180
agggctcgag gacaccgnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnc ccaactaccc 240
actggagttg ctgtactgcc tgtacgagac gcaggaggac gcgtttgtnc gccaaagccc 300
tgtgccggtt cccg 314

<210> 8
<211> 24
<212> PRT
<213> homo sapiens

<400> 8

Gly Ala Arg Val Leu Gly Gly Leu Leu Ser Lys Ala Leu Leu Pro Thr
1 5 10 15

Ala Leu Leu Leu Val Thr Thr Arg
20

<210> 9
<211> 17
<212> PRT
<213> homo sapiens

<400> 9

Leu Phe Ala Leu Cys Phe Val Pro Phe Val Cys Trp Ile Val Cys Thr
1 5 10 15

Val

<210> 10
<211> 17
<212> PRT
<213> homo sapiens

<400> 10

Ser Val Tyr Leu Leu Phe Ile Thr Ser Val Leu Ser Ser Ala Pro Val
1 5 10 15

Ala

<210> 11
<211> 21
<212> DNA
<213> Homo sapiens

<400> 11
catggtttca gagcgtgtga a

21

<210> 12
<211> 23
<212> DNA
<213> Homo sapiens

<400> 12
tcgtacaggc agtacagcaa ctc

23

<210> 13
<211> 80
<212> DNA
<213> Homo sapiens

<400> 13
cttcacacgc tctgaaacca tgcagccgaa gtggcgctcg atgtcgcgca tccctccgcg
ctcagcagtc cgaagaggaa

60

80

<210> 14
<211> 14
<212> PRT

<213> homo sapiens

<400> 14

Arg Phe Val Lys Glu Asn Glu Thr Leu Phe Ala Leu Cys Phe
1 5 10

<210> 15

<211> 17

<212> PRT

<213> homo sapiens

<400> 15

Phe Phe Arg Asp Glu Arg Arg Ala Glu Arg Ala Tyr Arg Phe Val Lys
1 5 10 15

Glu

<210> 16

<211> 13

<212> PRT

<213> homo sapiens

<400> 16

Ala Leu Leu Leu Val Thr Thr Arg Ala Ala Ala Pro Gly
1 5 10

<210> 17

<211> 13

<212> PRT

<213> homo sapiens

<400> 17

Glu Val Arg Gly Phe Ser Asp Lys Asp Lys Lys Lys Tyr
1 5 10

<210> 18

<211> 13

<212> PRT

<213> homo sapiens

<400> 18

Arg Asp Leu Ser Arg Thr Ser Lys Thr Thr Thr Ser Val
1 5 10

<210> 19

<211> 13
<212> PRT
<213> homo sapiens

<400> 19

Gln Thr Leu Phe Leu Ser Lys Lys Glu Leu Pro Gly Val
1 5 10

<210> 20
<211> 13
<212> PRT
<213> homo sapiens

<400> 20

Ser His Leu Val Leu Thr Thr Arg Phe Leu Phe Gly Leu
1 5 10

<210> 21
<211> 13
<212> PRT
<213> homo sapiens

<400> 21

Phe Gly Cys Met Val Ser Glu Arg Val Lys Gln Glu Ala
1 5 10

<210> 22
<211> 13
<212> PRT
<213> homo sapiens

<400> 22

Ala Leu Arg Leu Ile Ser Cys Arg Leu Val Ala Ala Gln
1 5 10

<210> 23
<211> 13
<212> PRT
<213> homo sapiens

<400> 23

Gly Ser Ser Gln Gly Thr Thr Lys Gln Leu Pro Ala Ser
1 5 10

<210> 24
<211> 13
<212> PRT

<213> homo sapiens

<400> 24

Gln Cys Arg Val Gln Thr Val Arg Val Gln Leu Pro Asp
1 5 10

<210> 25

<211> 514

<212> PRT

<213> homo sapiens

<400> 25

Met Cys Phe Ile Pro Leu Val Cys Trp Ile Val Cys Thr Gly Leu Lys
1 5 10 15

Gln Gln Met Glu Ser Gly Lys Ser Leu Ala Gln Thr Ser Lys Thr Ser
20 25 30

Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu Leu Gln Pro Arg Gly
35 40 45

Gly Ser Gln Glu His Gly Leu Cys Ala His Leu Trp Gly Leu Cys Ser
50 55 60

Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile Leu Phe Glu Glu Ser
65 70 75 80

Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp Val Ser Ala Phe Leu
85 90 95

Arg Met Asn Leu Phe Gln Lys Glu Val Asp Cys Glu Lys Phe Tyr Ser
100 105 110

Phe Ile His Met Thr Phe Gln Glu Phe Phe Ala Ala Met Tyr Tyr Leu
115 120 125

Leu Glu Glu Glu Lys Glu Gly Arg Thr Asn Val Pro Gly Ser Arg Leu
130 135 140

Lys Leu Pro Ser Arg Asp Val Thr Val Leu Leu Glu Asn Tyr Gly Lys
145 150 155 160

Phe Glu Lys Gly Tyr Leu Ile Phe Val Val Arg Phe Leu Phe Gly Leu
165 170 175

Val Asn Gln Glu Arg Thr Ser Tyr Leu Glu Lys Lys Leu Ser Cys Met
180 185 190

Ile Ser Gln Gln Ile Arg Leu Glu Leu Leu Lys Trp Ile Glu Val Lys
195 200 205

Ala Lys Ala Lys Lys Leu His Asp Gln Pro Ser Gln Leu Glu Leu Phe
210 215 220

Tyr Cys Leu Tyr Glu Met Gln Glu Glu Asp Phe Val Gln Arg Ala Met
225 230 235 240

Asp Tyr Phe Pro Lys Ile Glu Ile Asn Leu Ser Thr Arg Met Asp His
245 250 255

Met Val Ser Ser Phe Cys Ile Glu Asn Cys His Arg Val Glu Ser Leu
260 265 270

Ser Leu Gly Phe Leu His Asn Met Pro Lys Glu Glu Glu Glu Glu Glu
275 280 285

Lys Glu Gly Arg His Leu Asp Met Val Gln Cys Val Leu Pro Ser Ser
290 295 300

Ser His Ala Ala Cys Ser His Gly Leu Gly Arg Cys Gly Leu Ser His
305 310 315 320

Glu Cys Cys Phe Asp Ile Ser Leu Val Leu Ser Ser Asn Gln Lys Leu
325 330 335

Val Glu Leu Asp Leu Ser Asp Asn Ala Leu Gly Asp Phe Gly Ile Arg
340 345 350

Leu Leu Cys Val Gly Leu Lys His Leu Leu Cys Asn Leu Lys Lys Leu
355 360 365

Trp Leu Val Asn Ser Ala Leu Arg Gln Ser Val Val Gln Leu Cys Pro
370 375 380

Arg Tyr Ser Ala Leu Ile Arg Ile Ser Arg Thr Phe Thr Ala Arg Gln
385 390 395 400

His Ser Arg Arg Gln Gly Ile Lys Leu Leu Cys Glu Gly Leu Leu His
405 410 415

Pro Asp Cys Lys Leu Gln Val Leu Glu Leu Asp Asn Cys Asn Leu Thr
420 425 430

Ser His Cys Cys Trp Asp Leu Ser Thr Leu Leu Thr Ser Ser Gln Ser
435 440 445

Leu Arg Lys Leu Ser Leu Gly Asn Asn Asp Leu Gly Asp Leu Gly Val
450 455 460

Met Met Phe Cys Glu Val Leu Lys Gln Gln Ser Cys Leu Leu Gln Asn
465 470 475 480

Leu Gly Leu Ser Glu Met Tyr Phe Asn Tyr Glu Thr Lys Ser Ala Leu
485 490 495

Glu Thr Leu Gln Glu Glu Lys Pro Glu Leu Thr Val Val Phe Glu Pro
500 505 510

Ser Trp

<210> 26
<211> 1429
<212> PRT
<213> homo sapiens

<400> 26

Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
1 5 10 15

Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 65 | | | | | 70 | | | | | | 75 | | | | | 80 |
| Ser | Leu | Cys | Ala | Gln | Ala | Gln | Glu | Gly | Ala | Gly | His | Ser | Pro | Ser | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Pro | Tyr | Ser | Pro | Ser | Glu | Pro | His | Leu | Gly | Ser | Pro | Ser | Gln | Pro | Thr | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ser | Thr | Ala | Val | Leu | Met | Pro | Trp | Ile | His | Glu | Leu | Pro | Ala | Gly | Cys | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Thr | Gln | Gly | Ser | Glu | Arg | Arg | Val | Leu | Arg | Gln | Leu | Pro | Asp | Thr | Ser | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Gly | Arg | Arg | Trp | Arg | Glu | Ile | Ser | Ala | Ser | Leu | Leu | Tyr | Gln | Ala | Leu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Pro | Ser | Ser | Pro | Asp | His | Glu | Ser | Pro | Ser | Gln | Glu | Ser | Pro | Asn | Ala | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Pro | Thr | Ser | Thr | Ala | Val | Leu | Gly | Ser | Trp | Gly | Ser | Pro | Pro | Gln | Pro | |
| | | | 180 | | | | | 185 | | | | | | 190 | | |
| Ser | Leu | Ala | Pro | Arg | Glu | Gln | Glu | Ala | Pro | Gly | Thr | Gln | Trp | Pro | Leu | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Asp | Glu | Thr | Ser | Gly | Ile | Tyr | Tyr | Thr | Glu | Ile | Arg | Glu | Arg | Glu | Arg | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Glu | Lys | Ser | Glu | Lys | Gly | Arg | Pro | Pro | Trp | Ala | Ala | Val | Val | Gly | Thr | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Pro | Pro | Gln | Ala | His | Thr | Ser | Leu | Gln | Pro | His | His | His | Pro | Trp | Glu | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Pro | Ser | Val | Arg | Glu | Ser | Leu | Cys | Ser | Thr | Trp | Pro | Trp | Lys | Asn | Glu | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Asp | Phe | Asn | Gln | Lys | Phe | Thr | Gln | Leu | Leu | Leu | Leu | Gln | Arg | Pro | His | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Pro | Arg | Ser | Gln | Asp | Pro | Leu | Val | Lys | Arg | Ser | Trp | Pro | Asp | Tyr | Val | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
 305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
 325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
 340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
 355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
 370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
 385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
 405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
 420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
 435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
 450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
 465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
 485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
 500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
 515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
 530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln
 545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
 565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
 580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
 595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
 610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu
 625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
 645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
 660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
 675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
 690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
 705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
 725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
 740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
 755 760 765
 Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
 770 775 780
 Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
 785 790 795 800
 Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser
 805 810 815
 Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu
 820 825 830
 Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
 835 840 845
 Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn
 850 855 860
 Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala
 865 870 875 880
 Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu
 885 890 895
 Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
 900 905 910
 Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
 915 920 925
 Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
 930 935 940
 Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln
 945 950 955 960
 Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
 965 970 975
 Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met

| 980 | | | | | | 985 | | | | | | 990 | | | | | |
|-----|------|-----|-----|-----|-----|------|------|-----|-----|-----|------|-----|------|-----|-----|--|--|
| Thr | Pro | Thr | Glu | Gly | Leu | Asp | Thr | Gly | Glu | Met | Ser | Asn | Ser | Thr | Ser | | |
| | | 995 | | | | | 1000 | | | | | | 1005 | | | | |
| Ser | Leu | Lys | Arg | Gln | Arg | Leu | Gly | Ser | Glu | Arg | Ala | Ala | Ser | His | | | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| Val | Ala | Gln | Ala | Asn | Leu | Lys | Leu | Leu | Asp | Val | Ser | Lys | Ile | Phe | | | |
| | 1025 | | | | | 1030 | | | | | 1035 | | | | | | |
| Pro | Ile | Ala | Glu | Ile | Ala | Glu | Glu | Ser | Ser | Pro | Glu | Val | Val | Pro | | | |
| | 1040 | | | | | 1045 | | | | | 1050 | | | | | | |
| Val | Glu | Leu | Leu | Cys | Val | Pro | Ser | Pro | Ala | Ser | Gln | Gly | Asp | Leu | | | |
| | 1055 | | | | | 1060 | | | | | 1065 | | | | | | |
| His | Thr | Lys | Pro | Leu | Gly | Thr | Asp | Asp | Asp | Phe | Trp | Gly | Pro | Thr | | | |
| | 1070 | | | | | 1075 | | | | | 1080 | | | | | | |
| Gly | Pro | Val | Ala | Thr | Glu | Val | Val | Asp | Lys | Glu | Lys | Asn | Leu | Tyr | | | |
| | 1085 | | | | | 1090 | | | | | 1095 | | | | | | |
| Arg | Val | His | Phe | Pro | Val | Ala | Gly | Ser | Tyr | Arg | Trp | Pro | Asn | Thr | | | |
| | 1100 | | | | | 1105 | | | | | 1110 | | | | | | |
| Gly | Leu | Cys | Phe | Val | Met | Arg | Glu | Ala | Val | Thr | Val | Glu | Ile | Glu | | | |
| | 1115 | | | | | 1120 | | | | | 1125 | | | | | | |
| Phe | Cys | Val | Trp | Asp | Gln | Phe | Leu | Gly | Glu | Ile | Asn | Pro | Gln | His | | | |
| | 1130 | | | | | 1135 | | | | | 1140 | | | | | | |
| Ser | Trp | Met | Val | Ala | Gly | Pro | Leu | Leu | Asp | Ile | Lys | Ala | Glu | Pro | | | |
| | 1145 | | | | | 1150 | | | | | 1155 | | | | | | |
| Gly | Ala | Val | Glu | Ala | Val | His | Leu | Pro | His | Phe | Val | Ala | Leu | Gln | | | |
| | 1160 | | | | | 1165 | | | | | 1170 | | | | | | |
| Gly | Gly | His | Val | Asp | Thr | Ser | Leu | Phe | Gln | Met | Ala | His | Phe | Lys | | | |
| | 1175 | | | | | 1180 | | | | | 1185 | | | | | | |
| Glu | Glu | Gly | Met | Leu | Leu | Glu | Lys | Pro | Ala | Arg | Val | Glu | Leu | His | | | |
| | 1190 | | | | | 1195 | | | | | 1200 | | | | | | |

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| His | Ile | Val | Leu | Glu | Asn | Pro | Ser | Phe | Ser | Pro | Leu | Gly | Val | Leu |
| 1205 | | | | | | 1210 | | | | | 1215 | | | |
| Leu | Lys | Met | Ile | His | Asn | Ala | Leu | Arg | Phe | Ile | Pro | Val | Thr | Ser |
| 1220 | | | | | | 1225 | | | | | 1230 | | | |
| Val | Val | Leu | Leu | Tyr | His | Arg | Val | His | Pro | Glu | Glu | Val | Thr | Phe |
| 1235 | | | | | | 1240 | | | | | 1245 | | | |
| His | Leu | Tyr | Leu | Ile | Pro | Ser | Asp | Cys | Ser | Ile | Arg | Lys | Glu | Leu |
| 1250 | | | | | | 1255 | | | | | 1260 | | | |
| Glu | Leu | Cys | Tyr | Arg | Ser | Pro | Gly | Glu | Asp | Gln | Leu | Phe | Ser | Glu |
| 1265 | | | | | | 1270 | | | | | 1275 | | | |
| Phe | Tyr | Val | Gly | His | Leu | Gly | Ser | Gly | Ile | Arg | Leu | Gln | Val | Lys |
| 1280 | | | | | | 1285 | | | | | 1290 | | | |
| Asp | Lys | Lys | Asp | Glu | Thr | Leu | Val | Trp | Glu | Ala | Leu | Val | Lys | Pro |
| 1295 | | | | | | 1300 | | | | | 1305 | | | |
| Gly | Asp | Leu | Met | Pro | Ala | Thr | Thr | Leu | Ile | Pro | Pro | Ala | Arg | Ile |
| 1310 | | | | | | 1315 | | | | | 1320 | | | |
| Ala | Val | Pro | Ser | Pro | Leu | Asp | Ala | Pro | Gln | Leu | Leu | His | Phe | Val |
| 1325 | | | | | | 1330 | | | | | 1335 | | | |
| Asp | Gln | Tyr | Arg | Glu | Gln | Leu | Ile | Ala | Arg | Val | Thr | Ser | Val | Glu |
| 1340 | | | | | | 1345 | | | | | 1350 | | | |
| Val | Val | Leu | Asp | Lys | Leu | His | Gly | Gln | Val | Leu | Ser | Gln | Glu | Gln |
| 1355 | | | | | | 1360 | | | | | 1365 | | | |
| Tyr | Glu | Arg | Val | Leu | Ala | Glu | Asn | Thr | Arg | Pro | Ser | Gln | Met | Arg |
| 1370 | | | | | | 1375 | | | | | 1380 | | | |
| Lys | Leu | Phe | Ser | Leu | Ser | Gln | Ser | Trp | Asp | Arg | Lys | Cys | Lys | Asp |
| 1385 | | | | | | 1390 | | | | | 1395 | | | |
| Gly | Leu | Tyr | Gln | Ala | Leu | Lys | Glu | Thr | His | Pro | His | Leu | Ile | Met |
| 1400 | | | | | | 1405 | | | | | 1410 | | | |

Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro Leu Ser
 1415 1420 1425

Ser

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 <211> 8
 <212> PRT
 <213> bacteriophage T7

<400> 27

Asp Tyr Lys Asp Asp Asp Asp Lys
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<210> 28
 <211> 733
 <212> DNA
 <213> homo sapiens

<400> 28
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 aattcgaggg tgcaccgtca gtcttctctt tcccccaaaa acccaaggac accctcatga 120
 tctcccggac tcttgaggtc acatgcgtgg tgggtggacgt aagccacgaa gaccctgagg 180
 tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240
 aggagcagta caacagcacg taccgtgtgg tcagcgtcct caccgtcctg caccaggact 300
 ggctgaatgg caaggagtac aagtgcgaagg tctccaacaa agccctccca acccccatcg 360
 agaaaacccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc 420
 catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct 480
 atccaagcga catcgccgtg gagtgggaga gcaatgggca gccggagaac aactacaaga 540
 ccacgcctcc cgtgctggac tccgacggct ctttcttctt ctacagcaag ctcaccgtgg 600
 acaagagcag gtggcagcag gggaacgtct tctcatgctc cgtgatgcat gaggctctgc 660
 acaaccacta cacgcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc 720
 gactctagag gat 733

<210> 29
 <211> 39
 <212> DNA
 <213> Homo sapiens

<400> 29
gcagcagcgg ccgcgacggg ccccggttgc agggcgacc 39

<210> 30
<211> 37
<212> DNA
<213> Homo sapiens

<400> 30
gcagcagtcg acagaaggtc gagatgagtt ccttggg 37

<210> 31
<211> 39
<212> DNA
<213> Homo sapiens

<400> 31
gcagcagcgg ccgcagtgctg gccagccgc agcggctgc 39

<210> 32
<211> 37
<212> DNA
<213> Homo sapiens

<400> 32
gcagcagtcg acatccaggg tggtcagggc ggggctc 37

<210> 33
<211> 1032
<212> PRT
<213> Homo sapiens

<400> 33

Met Ala Ser Thr Arg Cys Lys Arg Tyr Leu Glu Asp Leu Glu Asp Val
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Asp Leu Lys Lys Phe Lys Met His Leu Glu Asp Tyr Pro Pro Gln Lys
20 25 30

Gly Cys Ile Pro Leu Pro Arg Gly Gln Thr Glu Lys Ala Asp His Val
35 40 45

Asp Leu Ala Thr Leu Met Ile Asp Phe Asn Gly Glu Glu Lys Ala Trp
50 55 60

Ala Met Ala Val Trp Ile Phe Ala Ala Ile Asn Arg Arg Asp Leu Tyr
65 70 75 80

Glu Lys Ala Lys Arg Asp Glu Pro Lys Trp Gly Ser Asp Asn Ala Arg
 85 90 95

Val Ser Asn Pro Thr Val Ile Cys Gln Glu Asp Ser Ile Glu Glu Glu
 100 105 110

Trp Met Gly Leu Leu Glu Tyr Leu Ser Arg Ile Ser Ile Cys Lys Met
 115 120 125

Lys Lys Asp Tyr Arg Lys Lys Tyr Arg Lys Tyr Val Arg Ser Arg Phe
 130 135 140

Gln Cys Ile Glu Asp Arg Asn Ala Arg Leu Gly Glu Ser Val Ser Leu
 145 150 155 160

Asn Lys Arg Tyr Thr Arg Leu Arg Leu Ile Lys Glu His Arg Ser Gln
 165 170 175

Gln Glu Arg Glu Gln Glu Leu Leu Ala Ile Gly Lys Thr Lys Thr Cys
 180 185 190

Glu Ser Pro Val Ser Pro Ile Lys Met Glu Leu Leu Phe Asp Pro Asp
 195 200 205

Asp Glu His Ser Glu Pro Val His Thr Val Val Phe Gln Gly Ala Ala
 210 215 220

Gly Ile Gly Lys Thr Ile Leu Ala Arg Lys Met Met Leu Asp Trp Ala
 225 230 235 240

Ser Gly Thr Leu Tyr Gln Asp Arg Phe Asp Tyr Leu Phe Tyr Ile His
 245 250 255

Cys Arg Glu Val Ser Leu Val Thr Gln Arg Ser Leu Gly Asp Leu Ile
 260 265 270

Met Ser Cys Cys Pro Asp Pro Asn Pro Pro Ile His Lys Ile Val Arg
 275 280 285

Lys Pro Ser Arg Ile Leu Phe Leu Met Asp Gly Phe Asp Glu Leu Gln
 290 295 300

Gly Ala Phe Asp Glu His Ile Gly Pro Leu Cys Thr Asp Trp Gln Lys
 305 310 315 320

Ala Glu Arg Gly Asp Ile Leu Leu Ser Ser Leu Ile Arg Lys Lys Leu
 325 330 335

Leu Pro Glu Ala Ser Leu Leu Ile Thr Thr Arg Pro Val Ala Leu Glu
 340 345 350

Lys Leu Gln His Leu Leu Asp His Pro Arg His Val Glu Ile Leu Gly
 355 360 365

Phe Ser Glu Ala Lys Arg Lys Glu Tyr Phe Phe Lys Tyr Phe Ser Asp
 370 375 380

Glu Ala Gln Ala Arg Ala Ala Phe Ser Leu Ile Gln Glu Asn Glu Val
 385 390 395 400

Leu Phe Thr Met Cys Phe Ile Pro Leu Val Cys Trp Ile Val Cys Thr
 405 410 415

Gly Leu Lys Gln Gln Met Glu Ser Gly Lys Ser Leu Ala Gln Thr Ser
 420 425 430

Lys Thr Thr Thr Ala Val Tyr Val Phe Phe Leu Ser Ser Leu Leu Gln
 435 440 445

Pro Arg Gly Gly Ser Gln Glu His Gly Leu Cys Ala His Leu Trp Gly
 450 455 460

Leu Cys Ser Leu Ala Ala Asp Gly Ile Trp Asn Gln Lys Ile Leu Phe
 465 470 475 480

Glu Glu Ser Asp Leu Arg Asn His Gly Leu Gln Lys Ala Asp Val Ser
 485 490 495

Ala Phe Leu Arg Met Asn Leu Phe Gln Lys Glu Val Asp Cys Glu Lys
 500 505 510

Phe Tyr Ser Phe Ile His Met Thr Phe Gln Glu Phe Phe Ala Ala Met
 515 520 525

Tyr Tyr Leu Leu Glu Glu Glu Lys Glu Gly Arg Thr Asn Val Pro Gly
 530 535 540

Ser Arg Leu Lys Leu Pro Ser Arg Asp Val Thr Val Leu Leu Glu Asn
 545 550 555 560

Tyr Gly Lys Phe Glu Lys Gly Tyr Leu Ile Phe Val Val Arg Phe Leu
 565 570 575

Phe Gly Leu Val Asn Gln Glu Arg Thr Ser Tyr Leu Glu Lys Lys Leu
 580 585 590

Ser Cys Lys Ile Ser Gln Gln Ile Arg Leu Glu Leu Leu Lys Trp Ile
 595 600 605

Glu Val Lys Ala Lys Ala Lys Lys Leu Gln Ile Gln Pro Ser Gln Leu
 610 615 620

Glu Leu Phe Tyr Cys Leu Tyr Glu Met Gln Glu Glu Asp Phe Val Gln
 625 630 635 640

Arg Ala Met Asp Tyr Phe Pro Lys Ile Glu Ile Asn Leu Ser Thr Arg
 645 650 655

Met Asp His Met Val Ser Ser Phe Cys Ile Glu Asn Cys His Arg Val
 660 665 670

Glu Ser Leu Ser Leu Gly Phe Leu His Asn Met Pro Lys Glu Glu Glu
 675 680 685

Glu Glu Glu Lys Glu Gly Arg His Leu Asp Met Val Gln Cys Val Leu
 690 695 700

Pro Ser Ser Ser His Ala Ala Cys Ser His Gly Leu Val Asn Ser His
 705 710 715 720

Leu Thr Ser Ser Phe Cys Arg Gly Leu Phe Ser Val Leu Ser Thr Ser
 725 730 735

Gln Ser Leu Thr Glu Leu Asp Leu Ser Asp Asn Ser Leu Gly Asp Pro
 740 745 750

Gly Met Arg Val Leu Cys Glu Thr Leu Gln His Pro Gly Cys Asn Ile

| 755 | | | | | 760 | | | | | 765 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Arg | Leu | Trp | Leu | Gly | Arg | Cys | Gly | Leu | Ser | His | Glu | Cys | Cys | Phe |
| 770 | | | | | | 775 | | | | | 780 | | | | |
| Asp | Ile | Ser | Leu | Val | Leu | Ser | Ser | Asn | Gln | Lys | Leu | Val | Glu | Leu | Asp |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Leu | Ser | Asp | Asn | Ala | Leu | Gly | Asp | Phe | Gly | Ile | Arg | Leu | Leu | Cys | Val |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Gly | Leu | Lys | His | Leu | Leu | Cys | Asn | Leu | Lys | Lys | Leu | Trp | Leu | Val | Ser |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Cys | Cys | Leu | Thr | Ser | Ala | Cys | Cys | Gln | Asp | Leu | Ala | Ser | Val | Leu | Ser |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Thr | Ser | His | Ser | Leu | Thr | Arg | Leu | Tyr | Val | Gly | Glu | Asn | Ala | Leu | Gly |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Asp | Ser | Gly | Val | Ala | Ile | Leu | Cys | Glu | Lys | Ala | Lys | Asn | Pro | Gln | Cys |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Asn | Leu | Gln | Lys | Leu | Gly | Leu | Val | Asn | Ser | Gly | Leu | Thr | Ser | Val | Cys |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Cys | Ser | Ala | Leu | Ser | Ser | Val | Leu | Ser | Thr | Asn | Gln | Asn | Leu | Thr | His |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Leu | Tyr | Leu | Arg | Gly | Asn | Thr | Leu | Gly | Asp | Lys | Gly | Ile | Lys | Leu | Leu |
| | | 915 | | | | | 920 | | | | | 925 | | | |
| Cys | Glu | Gly | Leu | Leu | His | Pro | Asp | Cys | Lys | Leu | Gln | Val | Leu | Glu | Leu |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Asp | Asn | Cys | Asn | Leu | Thr | Ser | His | Cys | Cys | Trp | Asp | Leu | Ser | Thr | Leu |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Leu | Thr | Ser | Ser | Gln | Ser | Leu | Arg | Lys | Leu | Ser | Leu | Gly | Asn | Asn | Asp |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Leu | Gly | Asp | Leu | Gly | Val | Met | Met | Phe | Cys | Glu | Val | Leu | Lys | Gln | Gln |
| | | | 980 | | | | | 985 | | | | | 990 | | |

Ser Cys Leu Leu Gln Asn Leu Gly Leu Ser Glu Met Tyr Phe Asn Tyr
 995 1000 1005

Glu Thr Lys Ser Ala Leu Glu Thr Leu Gln Glu Glu Lys Pro Glu
 1010 1015 1020

Leu Thr Val Val Phe Glu Pro Ser Trp
 1025 1030

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 <212> DNA
 <213> artificial

<220>
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<400> 34
 cctctcatcc cggaagaacu uguag 25

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<220>
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<400> 35
 ggcctcctgc uucacacgcu cugaa 25

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<400> 36
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<210> 37
 <211> 25
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<220>
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<400> 37
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<210> 38
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 <213> artificial

<220>
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<400> 38
 ttctccttca cgaagcggua ggcgc 25

<210> 39
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 <212> DNA
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<400> 39
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<400> 40
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<400> 41
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<220>
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<220>
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 <222> (1)..(11)
 <223> wherein "X" equals any naturally occurring amino acids

<220>
 <221> MISC_FEATURE
 <222> (12)..(12)
 <223> wherein "X" equals either "leucine" or other naturally occurring aliphatic amino acid residue.

<220>
 <221> MISC_FEATURE
 <222> (13)..(15)
 <223> wherein "X" equals any naturally occurring amino acids

<220>
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 <222> (16)..(16)
 <223> wherein "X" equals either "leucine" or other naturally occurring aliphatic amino acid residue.

<220>
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 <222> (17)..(20)
 <223> wherein "X" equals any naturally occurring amino acids

<400> 42

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Leu | Xaa | Xaa | Leu | Xaa | Leu | Xaa | Xaa | Asn | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | |
|-----|-----|-----|-----|
| Xaa | Xaa | Leu | Xaa |
| | | | 20 |

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<220>
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<220>
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 <223> wherein "X" equals any naturally occurring amino acid.

<220>
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 <222> (21)..(21)
 <223> wherein "X" equals any naturally occurring non-polar amino acid residue.

<220>
 <221> MISC_FEATURE
 <222> (22)..(24)
 <223> wherein "X" equals any naturally occurring amino acid.

<400> 43

Leu Xaa Xaa Leu Xaa Xaa Leu Xaa Leu Xaa Xaa Asn Xaa Leu Xaa Xaa
1 5 10 15

Leu Pro Xaa Xaa Xaa Phe Xaa Xaa
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<210> 44

<211> 8

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<220>

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<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> wherein "X" equals either "arginine" or "lysine".

<220>

<221> MISC_FEATURE

<222> (2)..(3)

<223> wherein "X" equals any naturally occuring amino acid residue.

<220>

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<222> (4)..(4)

<223> wherein "X" equals either "aspartic acid" or "glutamic acid".

<220>

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<222> (5)..(7)

<223> wherein "X" equals any naturally occuring amino acid residue.

<220>

<221> misc_feature

<222> (8)..(8)

<223> Xaa can be any naturally occurring amino acid

<400> 44

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 45

<211> 8

<212> PRT

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<220>

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<222> (1)..(1)

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<220>

<221> MISC_FEATURE

<222> (2)..(4)

<223> wherein "X" equals any naturally occurring amino acid.

<220>

<221> MISC_FEATURE

<222> (5)..(5)

<223> wherein "X" equals either "aspartic acid" or "glutamic acid".

<220>

<221> MISC_FEATURE

<222> (6)..(7)

<223> wherein "X" equals any naturally occurring amino acid residue..

<220>

<221> misc_feature

<222> (8)..(8)

<223> Xaa can be any naturally occurring amino acid

<400> 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

1

5